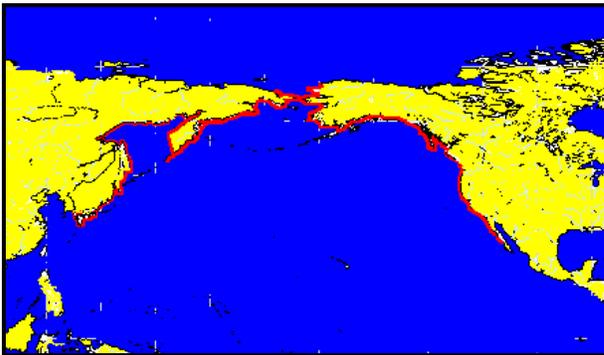


3.3.3 Northern lampfish *Stenobranchius leucopsarus*



Distribution map for adult northern lampfish

Adult Range: California Current System from northern Baja California to Bering Sea and Japan.

Life History: Size: to 12 cm (5 in.); Age at maturity: about four years; Fecundity: no information available; Life span: up to eight years.

Adult Habitat: From shoreline to 3,000 m (9,800 ft).

Adult Fishery: No commercial or recreational fishery.

Adult northern lampfish *Stenobranchius leucopsarus* are found from the shoreline to approximately 3,000 m (9,800 ft) (Miller and Lea 1972). The center of their adult population is well offshore of Morro Bay. Northern lampfish juveniles and adults were not collected in any of the fish studies conducted in Morro Bay (Fierstine et al. 1973, Horn 1980, CDFG unpubl. otter trawl data) or in the two MBPP impingement studies (Behrens and Sommerville 1982, this study) (see Appendix B). Northern lampfish are oviparous and produce planktonic eggs and larvae (Moser 1996). Larvae can be found throughout the CalCOFI sampling area from the tip of Baja California to the California-Oregon border and out to about 400 nautical miles offshore. The highest abundance of northern lampfish larvae occurs in the winter and spring (Moser 1996).

3.3.3.1 Northern Lampfish Results

Northern lampfish larvae were collected at the MBPP intake station in winter and spring (Figure 3-16). The timing of peak concentration during January 2000 differed from recorded peak larval abundance in CalCOFI surveys, which typically occurs in March (Moser 1996). Intake station concentrations in December 2000 were reduced from 1999 levels.

The length frequency distribution for a representative sample of northern lampfish larvae showed a relatively wide size range of 3.2 to 9.7 mm (0.13 to 0.38 in.) with an average size of 4.7 mm (0.19 in.) (Figure 3-17). While a group of larger larvae were collected, most of the larvae were in the 4 to 5 mm (0.16 to 0.2) range.

Northern lampfish larvae were present in source water surveys in winter and spring months (Figure 3-18). Adults of this species are pelagic to bathypelagic, with the center of their population well offshore. Their larvae occurred from the southernmost reaches of Morro Bay (Station 4) out into Estero Bay. Similar to their adult distribution, northern lampfish larvae were generally most abundant in Estero Bay (Station 5) and at the mouth of Morro Bay harbor (Station 1). The highest concentration of northern lampfish larvae occurred in Estero Bay.

Concentration ($\#/m^3$) of larval northern lampfish was compared among stations for collections made on ebb and flood tides (Figure 3-19). Their abundances at the sampling locations did not appear to be related to tidal current.

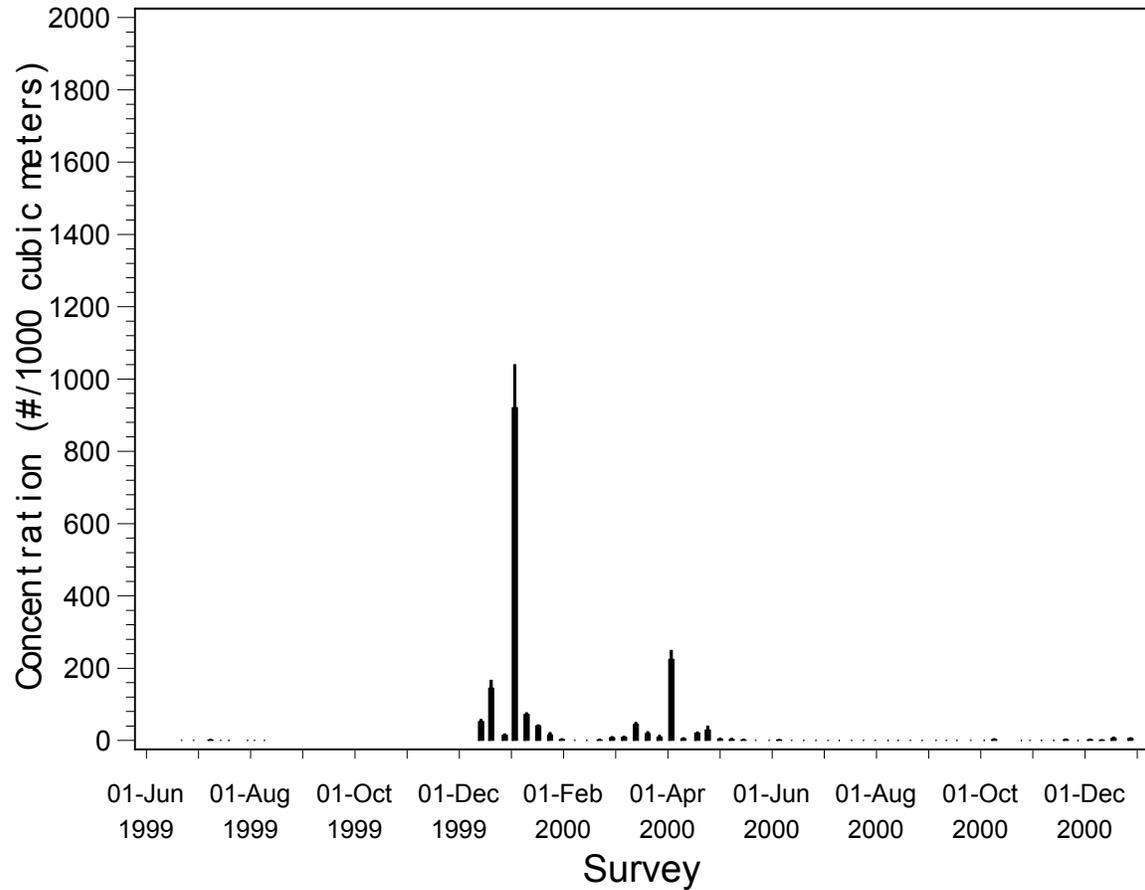


Figure 3-16. Weekly survey mean concentrations of larval northern lampfish collected at the MBPP intake station with standard error indicated (+1 SE). Weekly surveys were collected from June 21 through August 10, 1999 and from December 14, 1999 through December 29, 2000.

Note: The October 16, 2000 survey was cancelled due to the unavailability of a boat.

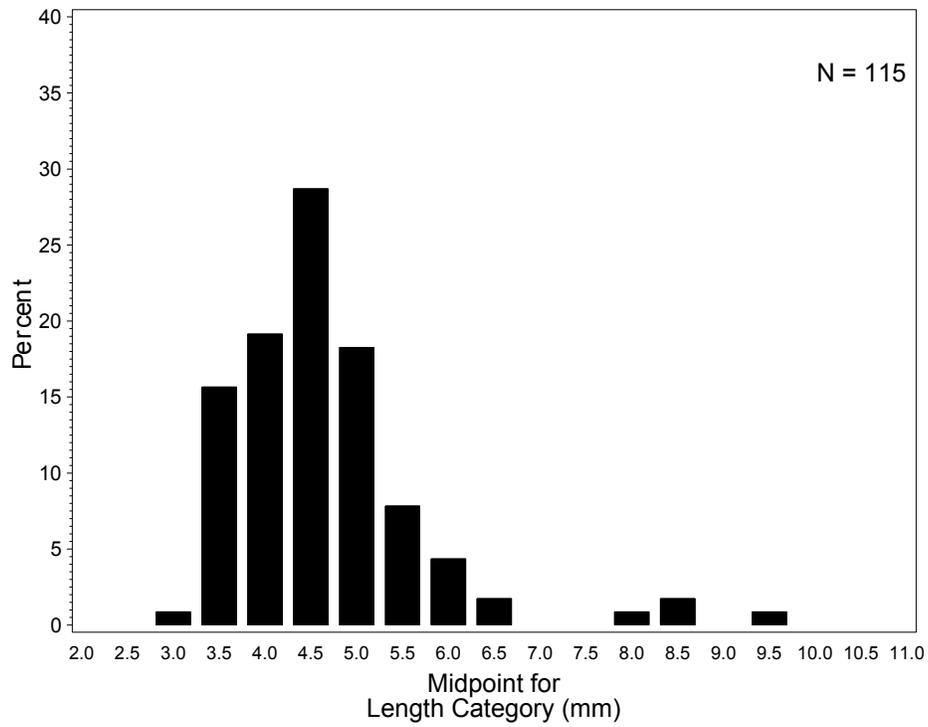


Figure 3-17. Length frequency distribution (mm) for larval northern lampfish collected at the MBPP intake station from January – December 2000. The frequency distribution is based on the lengths of a representative sample of approximately 100 larvae.

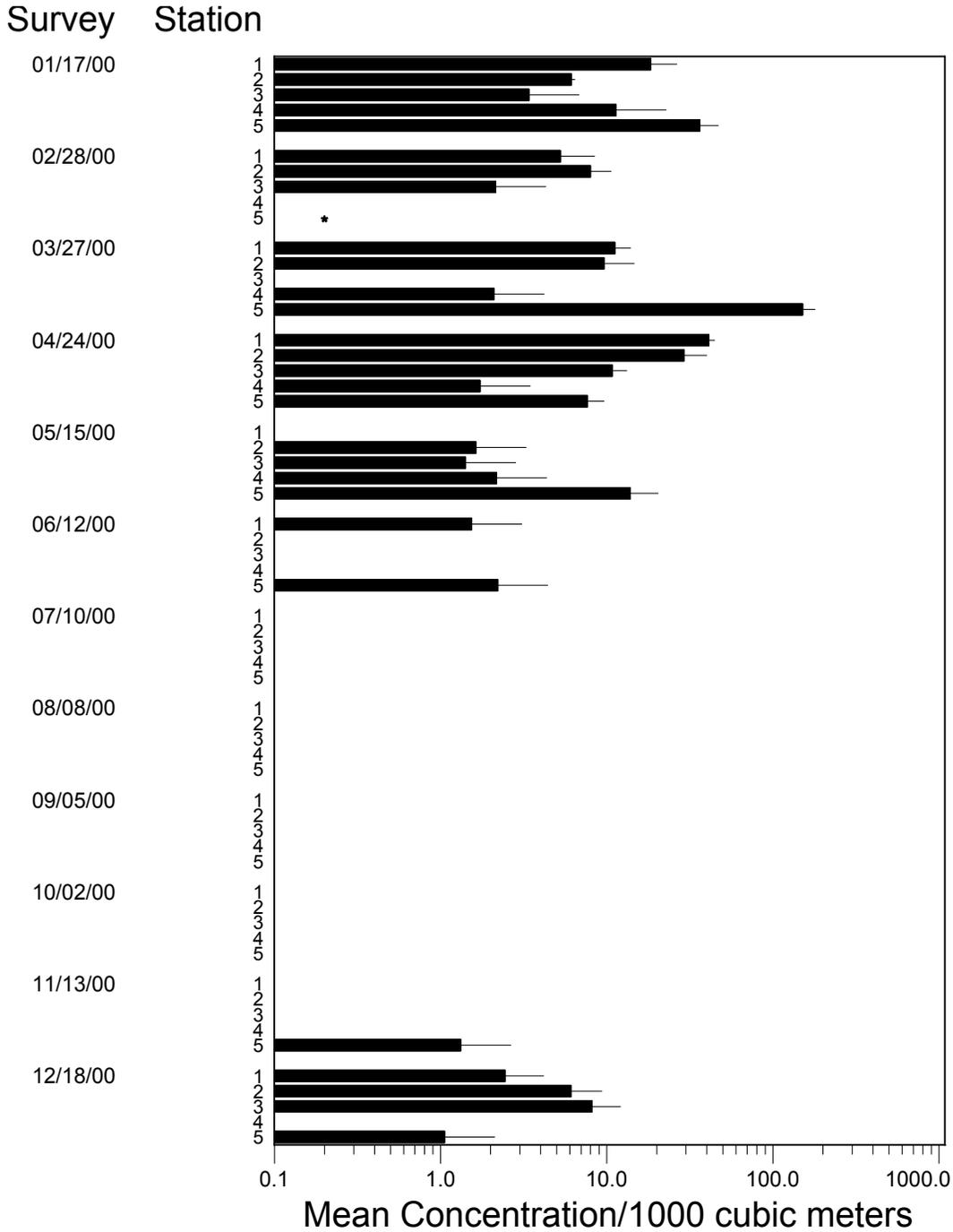


Figure 3-18. Mean larval northern lampfish concentration in monthly paired surveys at the MBPP intake (Station 2), Morro Bay source water (Stations 1, 3, and 4), and Estero Bay (Station 5) from January – December 2000 with standard error indicated (+1 SE).

Note: During the January 17, 2000 survey, source water stations 1, 3, 4, and 5 were sampled only in daylight hours. Beginning in February 2000 the sampling frequency was increased to cover a 24-hour period.

* Estero Bay Station 5 could not be sampled in February 2000 due to unsafe sea conditions.

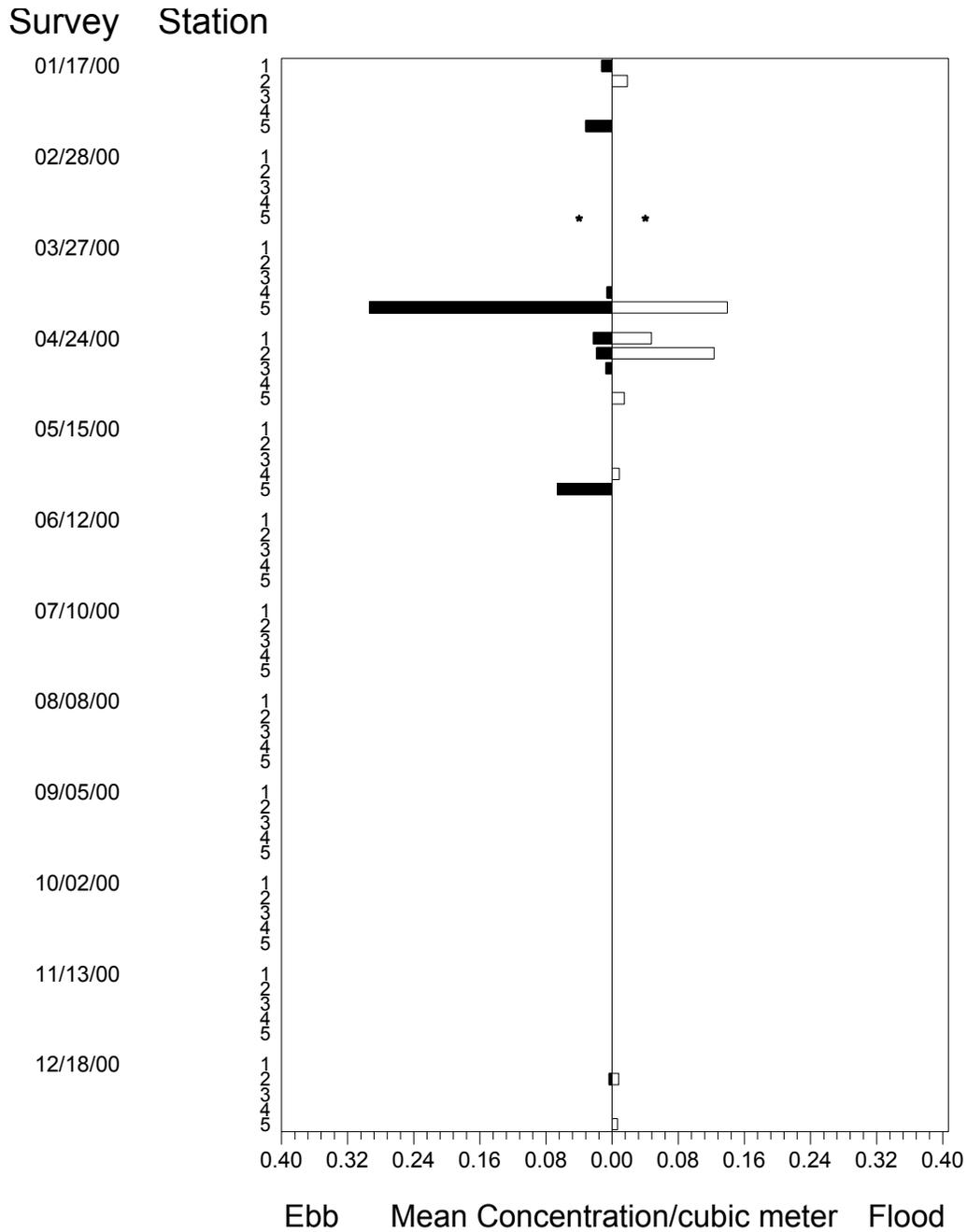


Figure 3-19. Mean concentration of larval northern lampfish from monthly paired surveys by tidal current (ebb – solid bars; flood – clear bars) and sampling station (Morro Bay stations 1–4 and Estero Bay Station 5) from January – December 2000.

Note: During the January 17, 2000 survey, source water stations 1, 3, 4, and 5 were sampled only in daylight hours. Beginning in February 2000 the sampling frequency was increased to cover a 24-hour period.

*Estero Bay Station 5 could not be sampled in February 2000 due to unsafe sea conditions.

